IN THE CLAIMS:

Please enter the following amended claims as follows:

1. (previously amended) A stator core for an electrical machine, the stator core comprising high thermal conductivity components within a low loss stator iron assembly, the high thermal conductivity components providing heat conductor pathways to facilitate heat transfer and heat dissipation from electromagnetic windings within the electrical machine, the low loss stator iron assembly comprising low loss stator iron laminations of a material, the high thermal conductivity components comprising coatings applied to the laminations of the low loss stator iron assembly.
2. (cancelled).
3. (previously amended) A stator core as claimed in claim 1, wherein said laminations are in the range of 0.1 to 0.35mm thick.
4. (previously amended) A stator core as claimed in claim 1, wherein said material is one of a high resistivity silicon steel and cobalt iron alloy and each lamination of the low loss stator iron is insulated for eddy current inhibition.
5. (cancelled).
6. (cancelled).
7. (cancelled).
8. (previously amended) A stator core as claimed in claim 25 wherein the high thermal conductivity laminations comprises carbon fibres, the carbon fibres are arranged to extend radially.
9. (original) A stator core as claimed in claim 1, wherein the proportion of components of high thermal conductivity is in the range up to 20%.
10. (previously amended) A stator core as claimed in claim 1, wherein the low loss stator iron assembly presents a repeated pack width in the range of 3mm to 8mm of low loss stator iron either side of a width of high thermal conductivity component in the range of 0.5mm to 1.0mm.
11. (original) A stator core as claimed in claim 1, wherein there is a high thermal

conductivity cement, adhesive, paste, gel or other means between the high thermal conductivity components and the low loss stator iron assembly to facilitate good thermal transfer between them.

12. (original) A stator core as claimed in claim 1, wherein the thermal conductivity components have radially outer edges, the radially outer edges of the high thermal conductivity components extend beyond the body of the low loss stator iron assembly to facilitate in use greater heat transfer to a stator housing and/or cooling means for the stator core.

13. (original) A stator core as claimed in claim 12, wherein the radially outer edges of respective adjacent high thermal conductivity components comprise tabs, pins, pedestals or other heat transfer features which are staggered or offset relative to each other between components.

14. (original) A stator core as claimed in claim 12, wherein a high thermal conductivity layer is provided for better thermal contact between the stator core and a housing for the stator core.

15. (original) A stator core as claimed in claim 14 wherein the high thermal conductivity layer is a coating on the outside of the stator core or on the inside of the housing or both.

16. (cancelled).

17. (currently amended) A stator core as claimed in claim 25 wherein the high thermal conductivity ~~component~~ components are ~~is~~ selected from the group comprising composite carbon fibre material, carbon fibre copper metal matrix composite, carbon fibre aluminium metal matrix composite, carbon nanotube composite, exfoliated graphite composite, carbon fullerine composite, silicon nitride and aluminium nitride.

18. (previously amended) An electrical machine comprising a rotor, a stator and a core, the core comprising high thermal conductivity components within a low loss iron assembly, the high thermal conductivity components providing heat conductor pathways to facilitate heat transfer and heat dissipation from electromagnetic windings within the electrical machine, the low loss stator iron assembly comprising low loss stator iron laminations of a material, the high thermal conductivity components comprising coatings

applied to the laminations of the low loss stator iron assembly.

19. (original) An electrical machine as claimed in claim 18 wherein the electrical machine is a permanent magnet electrical machine.

20. (original) An electrical machine as claimed in claim 19 wherein the rotor carries permanent magnets and the stator carries windings.

21. (original) An electrical machine as claimed in claim 19 wherein the rotor carries windings and the stator carries permanent magnets.

22. (original) An electrical machine as claimed in claim 20 wherein the core is a stator core.

23. (original) An electrical machine as claimed in claim 21 wherein the core is a rotor core.

24. (original) An electrical machine as claimed in claim 18 wherein high thermal conductivity components are arranged at the ends of the core.

25. (currently amended) A stator core for an electrical machine, the stator core comprising high thermal conductivity components within a low loss iron assembly, the high thermal conductivity component providing heat conductor pathways to facilitate heat transfer and heat dissipation from electromagnetic windings within the electrical machine, the low loss stator iron assembly comprising laminations of a material, the high thermal conductivity components comprising laminations within the low loss stator iron assembly, the high thermal conductivity laminations comprising one of an adhesive, a resin and other matrix, which is loaded with a high thermal conductivity material wherein the high thermal conductivity components are selected from the group comprising composite carbon fibre material, carbon fibre copper metal matrix composite, carbon fibre aluminium metal matrix composite, carbon nanotube composite, exfoliated graphite composite, carbon fullerine composite, silicon nitride and aluminium nitride.

26. (previously presented) A stator core for an electrical machine, the stator core comprising high thermal conductivity components within a low loss iron assembly, the high thermal conductivity component providing heat conductor pathways to facilitate heat transfer and heat dissipation from electromagnetic windings within the

electrical machine, the low loss stator iron assembly comprising laminations of a material, the high thermal conductivity components comprising laminations within the low loss stator iron assembly, the high thermal conductivity laminations comprising an electrically insulating and thermally conductive material.

27. (previously presented) A stator core as claimed in claim 26 wherein the electrically insulating and thermally conductive material comprises aluminium nitride or silicon carbide.

28. (previously presented) A stator core as claimed in claim 1 wherein the high thermal conductivity coating comprises copper or aluminium.

29. (previously presented) A stator core as claimed in claim 1 wherein an insulating coating is arranged on the high thermal conductivity coating.

30. (previously presented) A stator core as claimed in claim 29 wherein the insulating coating comprises copper oxide or aluminium oxide.

31. (previously presented) An electrical machine comprising a rotor, a stator and a core, the core comprising high thermal conductivity components within a low loss iron assembly, the high thermal conductivity components providing heat conductor pathways to facilitate heat transfer and heat dissipation from electromagnetic windings within the electrical machine, the low loss stator iron assembly comprising low loss stator iron laminations of a material, the high thermal conductivity components comprising laminations within the low loss stator iron assembly, the high thermal conductivity laminations comprising one of an adhesive, a resin and other matrix, which is loaded with a high thermal conductivity material.

32. (previously presented) An electrical machine comprising a rotor, a stator and a core, the core comprising high thermal conductivity components within a low loss iron assembly, the high thermal conductivity components providing heat conductor pathways to facilitate heat transfer and heat dissipation from electromagnetic windings within the electrical machine, the low loss stator iron assembly comprising low loss stator iron laminations of a material, the high thermal conductivity components comprising laminations within the low loss

stator iron assembly, the high thermal conductivity laminations comprising an electrically insulating and thermally conductive material.

33. (previously presented) A stator core as claimed in claim 32 wherein the electrically insulating and thermally conductive material comprises aluminium nitride or silicon carbide.

34. (previously presented) A stator core as claimed in claim 18 wherein the high thermal conductivity coating comprises copper or aluminium.

35. (previously presented) A stator core as claimed in claim 18 wherein an insulating coating is arranged on the high thermal conductivity coating.

36. (previously presented) A stator core as claimed in claim 35 wherein the insulating coating comprises copper oxide or aluminium oxide.

37. (previously presented) A stator core as claimed in claim 25 wherein the high thermal conductivity laminations comprises carbon nanotubes, the carbon nanotubes are arranged to extend radially.

38. (new) A stator core for an electrical machine as claimed in claim 1 wherein the material is silicon steel.

39. (new) A stator core for an electrical machine as claimed in claim 1 wherein the material is cobalt iron alloy.

40. (new) A stator core for an electrical machine as claimed in claim 1 wherein each lamination is insulated with an organic electrical insulating coating.

41. (new) A stator core for an electrical machine as claimed in claim 1 wherein each lamination is insulated with an inorganic varnish electrical insulating coating.

42. (new) A stator core for an electrical machine as claimed in claim 1 wherein each lamination is insulated with an oxide electrical insulating coating.